

Molecules in high-mass star-forming regions - theory and observation

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It has become clear in recent years that regions of massive star-formation contain small clumps of hot, dense gas. These so-called *hot molecular cores* are known to be strong emitters of rotational line emission and contain very large abundances of certain molecules, particularly hydrogenated species, and are particularly suitable for observation by interferometers such as ALMA. This review will discuss recent observations which suggest that the chemical composition of the gas is determined to a large extent by the evaporation of molecular ices and subsequent gas-phase processing. Despite their high temperatures, hot molecular cores contain species which are significantly fractionated in deuterium. The degree of fractionation may give information on the ice condensation temperature in such regions. The connection between the 'ices' in hot molecular cores and comets will also be discussed.

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